

China - Shenzhen pilot ETS

General Information

ETS Description

The Shenzhen Pilot ETS began in June 2013 and was the first of the Chinese pilots to start operation. As a city within Guangdong province with its own separate ETS, Shenzhen is the only Chinese pilot operating at the sub-provincial level. The ETS covers around 50% of the city's emissions. Covered entities must surrender allowances for all their covered emissions, and allocation is based predominantly on free allocation.

The Shenzhen ETS covers emissions from over 650 entities in the industry, buildings, and transport sectors. Except for two auctions held in 2014 and 2022, allowances have been allocated freely using both benchmarking and grandparenting. In addition to the national offset program (CCER), the Shenzhen ETS also implements local offset programs, including the Tan Pu Hui system. Shenzhen's market has the highest liquidity in China, despite its relatively small size. In contrast to most pilot systems in China, which are regulated by subnational government orders from the executive body of the government, Shenzhen's is regulated by a dedicated ETS bill passed by its municipal legislator, the Shenzhen People's Congress.

As of the end of 2022, the average emissions intensity of covered entities in the manufacturing sectors had dropped by 42%, while industrial value-added has increased by 63% on average.

The Shenzhen ETS currently operates in parallel with the Chinese national ETS. As the national ETS expands to new sectors, covered entities in these sectors will be integrated into the national carbon market from the regional markets.

ETS Status

in force

Jurisdictions

Shenzhen

Year in Review

[In March, the Shenzhen Environment and Ecology Bureau \(EEB\) updated its coverage list, removing 63 companies from the list of covered entities for 2022. While one company moved out of Shenzhen, the other 62 companies were removed as their emissions were below the inclusion threshold for three consecutive years. The Shenzhen ETS now covers 684 entities.](#)

In July, the Shenzhen EEB published the allocation plan for 2022 and 2023. Shenzhen introduced a mechanism to control the surplus and shortfall. For covered entities with verified emissions of over 100,000 tCO₂, the surplus and shortfall are limited to 20% of verified emissions. For covered entities with verified emissions less than 100,000 tCO₂, the surplus and shortfall are limited to 20,000 tCO₂. Since 2023, the Shenzhen ETS has also covered hotels and supermarkets with compliance obligation.

In October, the Shenzhen EEB published the list of 302 entities with MRV obligations for 2022. These companies may be covered by the Shenzhen ETS if they meet the inclusion threshold once emissions have been verified in 2023. The Shenzhen EEB also released the draft of revised MRV guidelines for public consultation.

In November, the Shenzhen EEB released the "Implementation Plan of Shenzhen Emissions Trading to Support Peaking Carbon Emissions and Achieving Carbon Neutrality". According to this plan, the Shenzhen ETS will apply an absolute cap from 2027. The plan

also lays out intentions to further expand the province's ETS coverage. It also aims to cover different reduction activities in offset crediting, link to the Guangdong-Hong Kong-Macao Greater Bay Area, and connect to the international credit market.

Sectoral coverage

Transport
Buildings
Industry

Revenue usage

General budget, including debt reduction
Climate mitigation

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO₂e)

45.42 MtCO₂e(2020)*

* No data is publicly available for recent years; the data here is estimated by local experts.

GHG reduction targets

By 2030: Peak carbon emissions (Outline of the 14th Five-Year Plan and 2035 Vision)

By 2035: Decouple GHG emissions from economic and social development (Shenzhen's 14th Five-Year Plan for Climate Change)

Current Allowance Price (per t/CO₂e)

CNY 46.37 (USD 6.55) (updated prices available [here](#))

Size & Phases

Covered emissions (2020)

50.00%

GHGs covered

CO₂ only

Phases

Ongoing (2013-present)

Cap or total emissions limit

A cap limits the total emissions allowed in the system.

2015 to 2019: ~31MtCO₂ (excluding buildings)

2020: 22 MtCO₂

2021: 25 MtCO₂

2022: 26 MtCO₂

2023: 28 MtCO₂

In addition, the government sets aside reserves for new entrants (2%) and market stability measures (2%).

Sectors and thresholds

Water, gas, heat, manufacturing, electronic equipment, waste management, ports, subways, public buses, and other non-transport sectors. Electricity production was covered until 2019, after which it transitioned to the China national ETS. According to the latest publicly available information, 33 sectors were covered in 2022.

INCLUSION THRESHOLDS: Annual emissions over 3,000 tCO₂ per year for enterprises; entities confirmed by local EEB.

Point of regulation

Point source (industry); downstream (indirect emissions from electricity and heat consumption).

Type of entities

Companies

Number of entities

680 (2022)

Allowance Allocation & Revenue

Allowance allocation

Allowances are largely distributed for free, and allocation is adjusted ex-post based on output data.

FREE ALLOCATION:

Benchmarking: Applied to the water, power grid, and gas sectors based on sectoral historical emissions intensity.

Grandparenting: Applied to waste management sectors, ports, subways, public buses, and other non-transport sectors based on a product-based historical emissions intensity method. A GDP-based historical emissions intensity method is applied to manufacturers. For public buildings such as hotels, supermarkets and universities, grandparenting based on historical emissions is applied.

AUCTIONING: The 2022 “Provisional Regulation of the Shenzhen Emission Trading Pilot Scheme” states that allowances can be sold at auction or at a fixed price. At least 3% of allowances should be auctioned. So far, two auctions have been held, in June 2014 and August 2022.

For the 2022 auction, the floor price was set at CNY 29.64 (USD 4.18) per tonne. More than 0.5 MtCO₂ of allowances were successfully auctioned, at an average price of CNY 43.49 (USD 6.14) per tonne and a total revenue of CNY 25.26 million (USD 3.75 million).

For the 2014 auction, the floor price was set at CNY 35.43 (USD 5.00) per tonne. 0.8 MtCO₂ of allowances were successfully auctioned, with a total revenue of CNY 2.65 million (USD 0.37 million). The purpose of this auction was to increase market supply and price stability.

Total Revenue

~CNY 27.9 million (USD 3.9 million) since the beginning of the program

Use of Revenues

According to the 2014 Shenzhen ETS regulation, auctioning revenues are attributed to the city treasury.* However, the 2022 revision states that the city will enhance the transparency of revenue use and establish a new Carbon Emissions Trading Fund to support the ETS and other GHG reduction programs.

*The 2014 Shenzhen ETS regulation stipulated that the city government would set up a market stability fund, dedicated to market stabilization measures, supporting companies’ mitigation activities, the promotion of market service institutions, capacity building, and ETS management, funded by auction revenues, donations and other channels.

Flexibility & Linking

Offset credits

The use of offset credits is allowed.

QUANTITATIVE LIMIT: The use of offset credits is limited to 20% of the annual compliance obligation.

QUALITATIVE LIMIT: Domestic project-based carbon offset credits (CCERs), Tan Pu Hui local offset credits, and other offset credits authorized by the local government are allowed. Credits from hydropower projects are not eligible, and additional geographical restrictions apply to the use of certain CCERs and local offset programs.

Banking and borrowing

Banking is allowed.

Borrowing is not allowed.

Links with other Systems

The Shenzhen Pilot ETS is not linked with any other system. The Guangdong-Hong Kong-Macao Greater Bay Area (to which Shenzhen belongs) plans to explore the feasibility of a joint or linked carbon market. According to Shenzhen's local green finance legislation, financial institutions will in the future be encouraged to participate in cross-border trading in this market.

Shenzhen also has pioneered cross-regional cooperation. In 2014, Shenzhen and Baotou signed the "Memorandum of Strategic Cooperation on the Construction of Carbon Trading Systems". Six Baotou companies of the Inner Mongolia Autonomous Region were voluntarily covered by Shenzhen's Pilot ETS for one compliance year, from June 2016.

Compliance

Compliance mechanism

Covered entities must surrender one allowance per tCO₂e emitted for all their covered emissions.

Compliance Period

One calendar year. Covered entities have until the end of August of the following year to surrender allowances.

Monitoring, Reporting, Verification (MRV)

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING FREQUENCY: Annual reporting of CO₂ emissions to the ETS competent authority by the end of March of the following year, using tiered emissions factors depending on different emission sources. Covered industrial entities must also annually submit a statistical indicator report covering their production data to the municipality's statistics department by the end of March of the following year. Entities should surrender allowances or offset credits by the end of August.

VERIFICATION: Third-party verification of the annual emissions report is required (deadline for submission is the end of March of the following year). The competent authority may assign this to a specialized agency.

FRAMEWORK: Shenzhen has released two documents:

- a general guiding document in the form of regional standards on monitoring and reporting; and
- a guiding document on monitoring and reporting for the buildings sector.

Enforcement

REGULATED ENTITIES: Penalties for failing to submit an emission or verification report on time or for providing fraudulent information range from CNY 10,000 (USD 1,411) to CNY 50,000 (USD 7,058).

Covered entities providing false information can be fined CNY 50,000-100,000 (USD 7,0586-14,116).

Penalties for disturbing the market order can rise to CNY 100,000 (USD 14,116). Covered entities failing to surrender sufficient allowances to match their emissions are fined three times the average market price of the preceding six months. The missing allowances can be withdrawn from the company's account or deducted from the next year's allocation.

CNY 50,000-100,000 (USD 7,058-14,116) may be imposed if a third-party agency falsifies reports.

Other non-financial penalties include public reporting, reporting to relevant credit information of public banks, disqualification from financial subsidies (for five years), and a record entered in the State-Owned Enterprise performance assessment system.

THIRD-PARTY VERIFIERS: Third-party verifiers shall be penalized with a fine of between CNY 10,000 (USD 1,411) to CNY 50,000 (USD 7,058) for issuing false verification reports, material errors in verification reports, and for unauthorized use or publication of confidential corporate or emissions information.

Market Regulation

Market Stability Provisions

EXCHANGE: Depending on transaction type, if prices vary by 10% or 30% in one day, the China Emissions Exchange (Shenzhen) can institute price stabilization measures such as temporarily suspending trading or imposing holding limits.

RESERVE: 2% of the total cap is kept as a government reserve for market stabilization.

INTERVENTION: In case of market fluctuations, the Shenzhen EEB can sell extra allowances from the reserve at a fixed price. Such allowances can be used only for compliance and cannot be traded. The government can also buy back up to 10% of the total cap. Once they are bought back, allowances can also be used in the market stability auctions.

Market Design

MARKET PARTICIPATION: Compliance entities; non-compliance entities (institutional investors); individuals (both domestic and international), subject to meeting the requirements of the carbon emission trading rules set by the China Emissions Exchange (Shenzhen).

MARKET TYPES:

Primary: Shenzhen so far has very limited experience with auctioning: two auctions have been held, in 2014 and 2022. Only compliance entities and member institutions authorized by the China Emissions Exchange (Shenzhen) may participate.

Secondary: CCERs, Shenzhen Allowances (SZAs) and local Tan Pu Hui offset credits are the main spot trading products in the secondary market. The China Emissions Exchange (Shenzhen) is the trading platform for all products.

Due to financial market regulations in China, no forward markets or derivatives are allowed. However, with the regional green finance legislation that entered into force in March 2021, Shenzhen sees new momentum to explore the development of innovative carbon financial products.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

Other Information

Institutions involved

Ecology Environment Bureau of Shenzhen Municipality (EEB): Responsible for ETS affairs, including the registry and MRV.

China Emissions Exchange (Shenzhen): Responsible for operating the trading platform.

Regulatory Framework

[Carbon Emissions Management Regulations of Shenzhen Special Economic Zone \(the local ETS bill\) \(2012\)](#)
[Measures for Management of Emissions Trading in Shenzhen \(2022\)](#)

[Implementation Plan of Shenzhen Emissions Trading to Support Peaking Carbon Emissions and Achieving Carbon Neutrality.](#)
[Shenzhen EEB—Notice on Carrying out ETS Work for Compliance Year 2019 \(with list of covered entities\)](#)

[Shenzhen EEB—Regulations on Tan Pu Hui Management](#)

[Shenzhen EEB—Allocation Plan for Vintage 2021](#)

[Shenzhen EEB—Allocation Plan for Vintage 2022 and 2023](#)

Evaluation / ETS review

No formal evaluation has been conducted. Research on improving the Shenzhen ETS is undertaken every year, funded by the Shenzhen government.

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